



USAID | DELIVER PROJECT

Policy Brief

Measuring Supply Chain Costs: Collecting Essential Information for Public Health Decisionmaking



USAID | DELIVER PROJECT 2009

In Zimbabwe, a truck delivers health commodities as part of the Delivery Team Topping Up system. Findings from a costing study of the system helped decisionmakers plan the future of the supply chain for key products.

Better knowledge of costs means stronger and more sustainable public health supply chains in developing countries.

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Why Measure Supply Chain Costs?

Essential health commodities such as medicines and contraceptives are key to improving health outcomes in developing countries. But those products do not move for free from the port of entry to the clinic. As a recent international analysis has shown, getting essential public health commodities to clients typically adds between 12 and 25 percent to the price (Sarley, Allain, and Akkihal 2009). This proportion can be substantially higher in post-conflict states and in states with limited resources. With medicines already accounting for a quarter to more than half of health spending in many countries (WHO 2004, 2011), the cost of health care supply chains is an essential consideration for health planning. To help countries better gauge such costs, the USAID | DELIVER PROJECT has developed a standard approach to measuring and analyzing supply chain costs. This approach can help programs in a variety of ways, including those listed below.

Advocate and Plan for Funding

Knowing the costs of the supply chain is essential for ensuring adequate financing and for helping countries work toward increased sustainability of the supply chain system. A costing exercise can determine how much it costs to deliver commodities from the central level to the health facility and can outline the costs according to each level of the supply chain. Governments can use this information to determine whether current budgets are sufficient and to plan for the appropriate level of investment. In *Nigeria*, part of the funds from cost recovery of contraceptives is meant to cover transportation of commodities. A costing exercise conducted in 2010 revealed that the funds were not generating enough to cover those costs, especially at the local government and service delivery levels.

The costing exercise findings are being used to help determine resource requirements for commodity distribution within the state budgets. They have also informed current discussions about the future of the cost recovery system.

Better Design and Plan Systems

A costing exercise can provide useful insight into cost drivers—those elements of the system that most influence costs—and, thus, can support strategic supply chain management and planning decisions. A costing study in *Mozambique*, conducted under the VillageReach project, found that under the redesigned supply chain it cost 17 percent less per fully vaccinated child and 21 percent less per vaccine dose delivered when compared to a neighboring province that did not operate a redesigned system (VillageReach 2009). The study also found that, in the redesigned system, vaccines composed 61 percent of total costs, whereas they made up only 46 percent in the comparison province, thereby showing an increase in efficiency because the logistics costs were less than the commodity costs. This increase is a significant improvement in itself, but it is also a particularly meaningful improvement in efficiency because vaccines are a low-cost commodity. The results led the Ministry of Health to instruct each of the country's 10 provinces to implement the redesigned vaccine distribution system.

Similarly, in *Zimbabwe*, the costing exercise conducted by the USAID | DELIVER PROJECT in 2009 illustrated for the government, for the first time, the full costs necessary to run a fully resourced traditional distribution system. Since 2004, the Ministry of Health, with support from development partners, has implemented the Delivery Team Topping Up (DTTU), a vendor-managed inventory system, for distribution of reproductive health and human immunodeficiency virus commodities. The DTTU approach has generated impressive results, with product availability reaching as high as 95 percent; however, the Ministry of Health and its partners wanted to know the impact on costs. Findings from the costing exercise showed that, with the right number of products, the DTTU model can deliver commodities at a lower cost than traditional distribution systems. The exercise contributed to the decision to continue an informed push system, where quantities are informed by current consumption data collected by the delivery team, in the medium term for reproductive health, as well as a similar system for tuberculosis and malaria products.

Make Clearer the Sources of Financing for the Supply Chain

Costing can paint a total picture of who finances the supply chain, thereby illustrating clearly how government and development partners fund the different functions. Many governments may not know what share of the supply chain is funded by which partner. Decisionmakers can use those data points to supplement their budgeting requests and to inform long-term financial planning, resource mobilization, and sustainability efforts.

Inform Decisionmaking about Fees for Supply Chain Services

A clear view of costs can help partners, governments, and central medical stores determine the appropriate fees to fund commodity management and distribution-related costs. Good cost information can also be the basis for negotiating outsourcing fees for functions such as transportation or warehousing, because governments and donors have historically based such supply chain fees on little actual evidence. Cost information can help set more realistic prices and margins for commodities that use a cost recovery approach to financing to better align revenues with transportation, supervision, and other supply chain costs. For example, *Zambia's* costing study, conducted in 2009, showed that the cost to deliver antiretroviral drugs to the sampled facilities ranges between 8 and 16 percent of the value of the commodities. This

information can be used to set future pricing policies and handling charges to ensure that fees are set on the basis of the value and volume of goods (Sarley, Allain, and Akkihal 2009).

USAID | DELIVER PROJECT Supply Chain Costing Approach

Many organizations have long recognized the importance of understanding supply chain costs. Early studies were carried out in Ghana to understand public sector logistics costs (Huff-Rouselle and Raja 2002) and in Uganda to determine the best mode of delivering essential drug kits (DELIVER 2003). Since 2009, The USAID | DELIVER PROJECT has spearheaded an effort to standardize costing through development of a costing approach—the Supply Chain Costing Tool (SCCT). Thus far, the project has used the tool to cost supply chains in Zambia (in 2009), Zimbabwe (in 2009), and Nigeria (in 2010).

The SCCT includes a “how to” manual as well as an Microsoft® Excel-based tool that allows the user to enter and analyze cost data. Supply chain costing estimates the cost of delivering commodities in a supply chain through each tier of the supply chain according to four main functions: procurement, transportation, storage, and management.

- *Procurement* includes in-country handling charges, clearance fees, and staff time spent on procuring commodities.
- *Transportation* includes the cost of moving commodities from one facility to another, as well as the cost of using commercial transport or vehicle rental. Per diem of drivers is also accounted for.
- *Storage* includes (a) the staff time spent at medical stores or health facilities receiving commodities, conducting physical inventory, and completing logistics management forms (e.g., registers, stock cards, bin cards, and request and requisition forms) and (b) the cost of the space where the commodities are stored.
- *Management* includes the labor to supervise and conduct monitoring, work with the logistics management information systems, and conduct quantifications; as well as operating and training costs.

Through the costing approach, the costing tool produces results on key metrics including the following:

- supply chain cost as a percentage of the total value of commodities
- supply chain cost per dollar of value, volume, or weight of commodities
- procurement, transportation, storage, or management costs as a percentage of total supply chain costs
- labor cost for procurement, transportation, storage, and management.

A costing using this approach typically takes eight weeks to conduct. It requires a two-person team with both costing and supply chain experience to lead the activity, as well as a team of experienced data collectors for the in-country data collection. The in-country work takes approximately two to three weeks, depending on the sample size. Collecting financial data can be a challenge depending on how readily available the information is and this should be taken into consideration when planning a costing study.

Conclusion

Having better knowledge of costs is key to strengthening and sustaining public health supply chains in developing countries. As the experience of the USAID | DELIVER PROJECT has shown, well-designed

costing exercises can provide decisionmakers with critical information as they face increasingly complex and challenging situations. For more information on this brief or on the Supply Chain Costing Tool, please contact the USAID | DELIVER PROJECT at askdeliver@jsi.com.

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